DOCUMENT RESUME

ED 235 654 EC 160 812

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TITLE When the Sensory Handicapped Child Has Cerebral Palsy. Part I: Physical Management. Part II: Deaf-Blind Curriculum and the Child with Cerebral Palsy. Working Papers in Developmental Disabilities.
INSTITUTION Nebraska Univ. Medical Center, Omaha. Meyer Children's Rehabilitation Inst.
PUB DATE Oct 74
NOTE 28p.; Paper presented at the Midwest Regional Center for Services to Deaf-Blind Children Teachers' Workshop (South Bend, IN, October, 1974).
PUB TYPE Guides - Non-Classroom Use (055) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Cerebral Palsy; Curriculum Development; Daily Living Skills; Deaf Blind; *Hearing Impairments; Infants; *Motor Development; Multiple Disabilities; *Physical Development; Physical Therapy; *Visual Impairments; Young Children

ABSTRACT

The paper addresses issues involved in the management of and curriculum for children with sensory impairments combined with cerebral palsy. The first part details typical deformities and their causes in children with cerebral palsy, and describes (with illustrations) techniques for therapeutic handling and positioning in daily living tasks at home and in the classroom (including picking up the child, positioning the child for play, positioning in chairs, and standing and walking). The role of the consulting therapist is considered and the importance of cooperation between therapist and teacher is stressed. Part II considers strategies for adapting the deaf-blind curriculum for a blind child with cerebral palsy. (CL)

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ED235654

Working Papers in Developmental Disabilities

Meyer Children's Rehabilitation Institute/University of Nebraska Medical Center

WHEN THE SENSORY HANDICAPPED CHILD HAS CEREBRAL PALSY

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WHEN THE SENSORY HANDICAPPED CHILD HAS CEREBRAL PALSY

PART I PHYSICAL MANAGEMENT

PART II DEAF-BLIND CURRICULUM AND THE CHILD WITH CEREBRAL PALSY

MATERIAL PRESENTED AT MIDWEST REGIONAL CENTER FOR SERVICES TO DEAF-BLIND CHILDREN TEACHERS' WORKSHOP

SOUTH BEND, INDIANA - OCTOBER, 1974

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WHEN THE SENSORY HANDICAPPED CHILD HAS CEREBRAL PALSY

PART I. PHYSICAL MANAGEMENT

Characteristics of Motor Problems

Physical therapists working with handicapped children utilize a variety of approaches based on developmental principles. With these techniques it is possible to facilitate active responses in very young or retarded children. Specific techniques of physical handling and positioning can help reduce the abnormal tone and postural patterns of the child with cerebral palsy, and facilitate the normal righting, protective, and equilibrium reactions which are the underlying building blocks of normal motor development. Therapy goals aim at helping the child to reach his best motor potential, preventing or minimizing deformities, and assisting the child to explore and exploit his environment, thus contributing to his total development. With early therapy begun under one year it is thought the child has the best chance to achieve his potential, and early identification and treatment are being strongly emphasized. As the child with cerebral palsy grows, however, all except the mildly handicapped have an ongoing battle with deformity, even as new motor skills are acquired. Eventually the acquisition of motor skills plateaus, but the battle with deformity can continue all through life.

When the child receives physical therapy this may be of little value if the management of the child in his daily life does not support the therapy program. It is important to teach the parents, caretakers and teachers ways to handle and position him in everyday care and play. He can be treated as he is carried, bathed, dressed, fed and in play. This can be planned for times the child is not receiving direct attention also, through correct and varied positioning, an important consideration in a busy

classroom. Parents or ward attendents taught therapeutic handling need not feel stressed by demanding exercise routines added to an already time consuming job caring for a handicapped child. Carry-over of management to the school situation is also important, and for many children the school situation may be the most important. Therapy cannot continue forever in the life of a handicapped child, but management must.

Typical Deformities and Their Causes

Let us review some of the typical deformities and their causes in cerebral palsied children before we describe some management principles. Deformities in cerebral palsy are often described in terms of "where"--- "why" and "how" are important if one is to prevent or counteract them. As you know, children with cerebral palsy have abnormal muscle tone: too stiff to allow free motion; too floppy to support upright posture; sometimes both manifested in the same child. They also have primitive or abnormal movement patterns and postures which interfere with the normal postural reactions we would like to see developing.

Fig. 1

One of the commonest deformities is that of right hip adductor muscles due to extensor-adductor spasm or scissoring. This can also lead to hip subluxation or dislocation (Fig. 1).

The abnormal tonic reflex patterns, such as the asymmetric tonic neck reflex in this child, can contribute to a trunk curve even when the child is lying (Fig. 2).

Fig. 2

Fig. 3

When placed in upright, over time this asymmetry can contribute to the development of scoliosis and windswept hips, with special danger of dislocation of the hip on the more flexed side (Fig. 3).

Muscles are organized in patterns, and in cerebral palsy the limbs tend to flex or extend in total patterns. This child's legs are flexed at all joints in all-fours (Fig. 4).

Fig. 4

Fig. 5

If the ankles are flexed to keep the heels down, knee and hip flexion may be a problem when the child tries to stand (Fig. 5).

The same child in prone may show total extension of hips, knees, and ankles when the hips are extended. This is an example of a situation where a good functional pattern that a therapist may be stressing, extension of neck and trunk, can lead to

Fig.6

increased abnormal extension of the legs because of what is called a "cephalocaudal chain reaction." Special techniques are needed to avoid making the child worse as one tries to make him better, such as spreading the legs in abduction, or bending the ankles (Fig. 6).

Exaggerated positive supporting reactions add to stiff total extension when the child is supported in standing, especially when he is lowered to stand. Again we are in danger of making him worse. This reaction is responsible for abnormal tone sometimes not being noticed until a child is pulling up and spending time on his feet (Fig. 7).

Fig. 7

The spastic child's sitting posture leads to several deformity problems. He is thrown back by his abnormal extension of his hips and legs, sits on his lower spine, and must flex his upper spine to maintain sitting. Tight hamstring muscles on the posterior thighs and tight hip adductors compound the situation. This is a common contributor to kyphosis or round-back deformity later (Fig. 8).

Fig. 8

The child with floppy tone who has insufficient antigravity tone also is in danger of kyphosis deformity over time if he is not adequately supported (Fig. 9).

Fig. 9

Fig. 10

Fig. 11

A less recognized cause of kyphosis is placing a child in a reclined cerebral palsy chair who is able to actively flex head and trunk forward - - over time this leads to a flexion or kyphosis deformity (Fig. 10).

A common cause of leg and hip deformities, and internally rotated gait in walking children, is going from all-fours to sit back between the legs in what is called "W-sitting." Children use an abnormal reflex to do this and may lack rotation patterns needed to turn to sit with legs in front (Fig. 11).

Therapeutic Handling and Positioning in Daily Care and Classroom

<u>Washing and Diapering the Child</u>

In daily care such as washing and diapering a child, one can counteract adduction deformity and facilitate the functional reactions needed for the development of rolling. Spreading extended legs apart or, if this is difficult, spreading them when flexed (abductor muscles like to work with the flexors, adductors with the extensors) can be done even those days when there is no time for exercises (Fig.12 & 13).

Fig. 12

Fig. 13

Turning over can be facilitated by crossing over a leg to stimulate the head and upper body to follow, or by assisting the child at the shoulders so his legs follow (Fig. 14 & 15).

Fig. 14

Fig. 15

Picking Up the Child

Picking up the child can encourage the forward head control needed for sitting up. This can be done every time one picks up the child. When the arms pull back in a nice traction response, and head lag is not too severe, slowly pulling up by the arms may encourage head lift (Fig. 16). When the child has more troublesome neck and trunk extension and arches back, it may help to flex the legs in preparation (Fig. 17). You can also hold the shoulders forward to control the extension. One may need to come up diagonally at first, eliminating gravity partially (Fig. 18). Eventually the child may be able to come up in the middle (Fig. 19). This shoulder grasp may also be helpful when

Fig. 16

Fig. 17

Fig. 18

Fig. 19

there is a poor traction response of the arms, to avoid trauma or dislocation.

Carrying the Child

Carrying the child is necessary - - it can also be therapeutic.

When you have a child who stiffly extends or scissors, this method of bending and spreading legs around one not only stretches adductors, but enables better trunk-head balance and participation in the carry (Fig. 20).

Fig. 20

A prone carry can stimulate head and trunk extension in prone or work through flexor spasm preparatory to placing a child in prone positioning (Fig. 21).

Fig. 21

The flexed chair carry helps control an extended child so he can be placed in a chair with his hips well back in the seat. This is appropriate for a child who stiffens like a board when you try to sit him (Fig. 22).

Fig. 22

Prone Work and Positioning

Prone work and positioning is often stressed. Commonly this is because it is often a particularly delayed area of development for a delayed cerebral palsied or blind child. It is here that head and trunk and hip extension prepare the child for upright posture against gravity in sitting

and standing. As flexor deformities of hips or knees become more of a problem with time, it is also used to counteract flexor deformity.

Head righting in prone can be facilitated a number of ways. This therapist is using tapping on the forehead (Fig. 23).

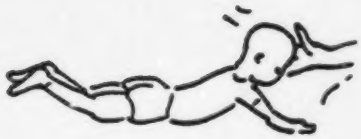

Fig. 23

Work over a prone bolster or ball may stimulate head lifting and trunk-hip extension (Fig. 24).

Fig. 24

Sometimes arms are flexed and stuck and the child cannot free them forward or erect on them (Fig. 25). Rather than just pulling them forward one might facilitate active forward movement by lifting the shoulder and helping the child learn to do it (Fig. 26). If that doesn't work, push the arm forward rather than pulling, which might reinforce the flexor spasm (Fig. 27).

Fig. 25

Fig. 26

Fig. 27

The child may be positioned in prone for play - - varying time according to his tolerance and ability, such as with a busy box in his crib (Fig. 28). Prone playtime can be planned in the nursery school, using a

soft round bolster for one child and a wedge which is a backrest pillow for another (Fig. 29).

Fig. 29

Fig. 28

A special cut-out support or wedge with side pieces is useful for a very asymmetric child who rolls over accidentally (Fig. 30).

Fig. 30

A wedge cushion is often used - - notice this is elbow height for this child who commonly extends him arms strongly. Notice his legs have been spread. This is important - - use a pillow between if necessary (Fig. 31).

Fig. 31

Fig. 32

A half-tire works in the sand (Fig. 32). It is particularly important for the child in long braces, who may sit a lot, to get stretched out in prone - - this may be done in a free playtime in nursery school. Special prone crawl boards of various kinds have

Fig. 33

been utilized to encourage prone positioning and allow mobility. There is an exception to use of prone positioning - - the child in marked hyperextension or opisthotonus in prone (Fig. 33).

He needs flexing - - here sternal pressure is applied to help him relax (Fig. 34). Side-lying may enable him to relax, or a hammock-type chair.

Fig. 34

Supine Positioning

Fig. 35

Supine positioning may need to be reduced for some children with strong extension in supine and who have more normal tone in other positions. For some, relaxation can be obtained by positioning head, legs, or both in some flexion. Centering of the head using some type of cut-out cushion may assist more symmetrical postures and help visual coordination (Fig. 35). Encouragment of bilateral reach forward at the midline is desirable in play, and helped by the symmetrical flexed position (Fig. 36).

Fig. 36

Assisting the child to play with his feet is another midline activity, and important in the development of body perception (Fig. 37).

Fig. 37

Side-lying

Side-lying may be recommended for play as it may allow more normal tone for some children and enable a child to coordinate eyes and hands at the midline (Fig 36). These two children are positioned for play in the classroom. A pillow is placed between the legs of the child on the right to prevent adduction of a sublaxed hip.

Fig.38

Sitting Work and Chairs

Sitting development requires the development of front and back head control, the use of arms in propping and protecting forward, sideways, and backward, and tilting or equilibrium reactions in which the head, trunk and limbs accommodate to disruption without propping. Handling techniques can encourage the basic propping and protective extension reactions as the child is pulled up in dressing (Fig. 39). Equilibrium reactions can be challenged by nudging or tilting his base (Fig. 40).

Fig. 39

Fig. 40

Fig. 41

Fig. 43

Fig. 44

When a child who stiffly extends is held to sit, he needs to be flexed and to feel an upright head rather than being held like a board (Fig. 42).

Fig. 42

This child is developing balance, but shows the plantar flexion of feet that may go with her knee extension (Fig. 43). Here her feet are bent up or dorsiflexed in the functional situation where the problem is seen. As much as possible, banging, or stretching should be done in functional postures as well as on the child's back for a special exercise time (Fig. 44).

Here we have a dilemma - - which is more important, straight knees to combat hamstring tightness, or straight back to combat kyphosis? The child can't straighten her back well when the knees of her braces are locked, but can with legs flexed in bench sitting (Fig. 45 & 46). It is difficult as a child gets older and must be positioned in school. Ideally we would not have to neglect either, and could vary

Fig. 45

Fig. 46

positioning during the day. Here we are placing one child in a "ring-sitting" position, grasping her trunk low and helping get hips bent. The other child is tailored, or Indian-sitting. Both are encouraged to prop their hands and are in the beginning stages of independent sitting (Fig. 47).

Fig. 47

Ideally therapists would like to see legs straight and spread, but that may be too difficult for a situation when someone can't assist every child. The flexed leg positions enable the children to balance a little better and still stretch out the adductor muscles. Indian-sitting is less used nowadays because the knee flexion contributes to hamstring tightness if it is habitual, although it allows a nice straight back and spreads thighs. This position is used chiefly when leg extension is so severe that this is the only way you can control the legs and get the child sitting, or when the hamstrings are already too tight to allow more knee extension.

Fig. 48

This is such a child in Indian-sitting in the corner, which provides some support and enables him to practice balancing (Fig. 48). Indian-sitting in the bathtub can help control extension when the child gets excited.

Indian-sitting is also preferable for a habitual "W-sitter" if the child has no significant hamstring tightness (Fig. 49).

Fig. 49

Fig. 50

Fig. 51

Fig. 52

Sometimes a floor chair is appropriate. Here are some guidelines for knowing when. This child is sitting with legs straight out and round back, and as he raises his hand to answer in class, he loses his balance (Fig. 50). When his legs are in "ring-sitting" his balance and back are somewhat better, but the teacher-aid still guards against his falling (Fig. 51). The floor chair enables him to free his hands and to attend better to the lesson without working so hard to maintain sitting (Fig. 52). The floor chair is meant for the child with some ability to sit, but with inadequate balance to free the hands.

The half-tire works similarly for sand play (Fig. 53).

Fig. 53

This corner chair is another type of floor chair, placed on a bench in this case to let gravity help flex the knees of this little boy with Spina Bifida, and paralyzed hamstring muscles (Fig. 54). The therpaist should assist in planning which postures are appropriate, because incorrect sitting is a common deformity producer.

Fig. 54

Appropriate chairs are important for combating deformity and enabling the child to use his hands and attend well in the classroom. This child is extending his hips and flexing his upper back as he is stimulated by the classroom situation. Hand coordination for table work is difficult (Fig. 55).

Fig. 55

Fig. 56

Fig. 57

Groin straps, also called"Y" straps which come up between the thighs and pull back over the hips, can be made. Here the teacher converted a soft trunk tie for this purpose (Fig. 56). Hips are now kept flexed, and back straight, without oversupporting the child. He can practice using the level of sitting he has and use his hands better (Fig. 57).

There are many kinds of chairs and modifications used for children with cerebral palsy. This hammock seat is good for an infant grown too big for an infant seat, but whose head and trunk control are not ready for an upright chair. A tilted up posture may encourage better visual awareness (Fig. 59). General Motors and Bobby Mac car seats may also be useful. An abduction post helps keep thighs spread and stop thrusting in a highchair, or a simple arm chair for some small children (Fig. 59). A wedge cushion in the seat may also stop thrusting in a chair.

Fig.58

Fig. 59

Fig. 60

Fig. 61

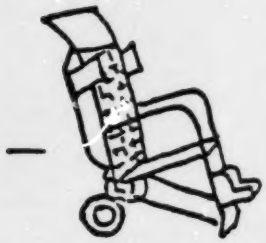

Fig. 62

An adjustable kindergarten chair meets the needs of many young children who have fair head control and who can sit erect with only partial assistance (Fig. 60). A trunk tie may be used. A bench for dangling feet may give stability and help balance (Fig. 61). For some children this may be important to counteract deformities of the feet. The Hogg chair is a lightweight tubing and webbing chair which comes in upright and reclined models, and is useful in transporting many moderately handicapped children (Fig. 62). It is not expensive and may meet needs adequately until the child's size or skills indicate the more expensive traditional wheelchair. A few children will require a prescriptive positioning chair because of severe head and trunk control problems (Fig. 63). These are expensive, whether commercial or handbuilt, and should be used for a rather restricted group of indications. Regular wheelchairs may be used for some children with the addition of firm backs or seats, wedge seats, or molded inserts. A "Sit-astride" chair breaks up adductor spasm and enables some children to sit straighter, balance, and use their hands better (Fig. 64). Chairs should be prescriptive, both as to time in them and type.

Fig. 63

Fig. 64

Two purposes should be considered - - sitting functions and transportation. Important factors are cost and as normal an appearance as possible. It is good idea to consult a knowledgeable physical or occupational therapist whenever a special chair seems warranted. Chair clinics may be organized by programs, with a consulting therapist and a carpenter making recommendations for needs of individual children and adaptation of equipment.

Mobility Needs

Fig. 65

Fig. 66

Now that we have the child in a chair, get him out! Too much chair sitting is one of the chief causes of increased flexor deformity as a child grows older. When he uses his hands or tries to talk, the flexor spasm may be intensified through associated reactions. Structured time during the day needs to be planned so that the child's hips and knees are extended in prone or standing. Freedom for mobility is also extremely important. Let the child move - - do not always position him. If he can move, don't carry him everywhere (Fig. 65 & 66). Ask the therapist which method is best for a child so that he does not use a deformity-producing pattern such as turning his wrists in as he crawls, on his stomach, or markedly flexed bunny-hopping on all-fours.

Rolling may be preferable, or a prone scooterboard. Seatscooting may be the travel method of some children, and you have probably found that many blind children will prefer this to crawling or creeping (Fig. 67). Upright head posture may give the blind child better spatial and

Fig. 67

and directional orientation. For a spastic hemiplegic child it could contribute to further flexor posturing of the involved arm, and the child might better roll or use the scooter board. Simply changing position by rolling over may insure some degree of mobility for more severely involved children. As a child gets older the therapist should be prepared to compromise - - mobility may be the most important goal.

Standing and Walking

Fig. 68

Standing does not just appear when the child is nearing walking readiness, but develops through several stages from the newborn period on. Flexible weight-bearing, as seen in the bouncing four to six-month-old child, is an important early ability. Rather than lowering a child to stand on stiffly extended legs and feet, bring him up from a squat-sit, maintaining heels on floor (Fig. 68).

The ability to stand with legs spread and to extend trunk and hips is a necessary readiness for later skills of pulling up and standing alone. You can assist the child to stand up astride your leg (Fig. 69). When you assist a child to stand by dangling him by the arms, this may be harmful to the shoulders. He needs to learn to use his arms for support and balance (Fig. 70). You might better hold him by the trunk or hips for early standing work by a table to play (Fig. 70).

Fig. 69

Fig. 70

Appropriate methods need to be demonstrated by a therapist for each child.

Fig. 71

Standing tables are used in home and school to provide weight bearing for hip joint development, standing endurance, and a chance to be straightened out awhile (Fig. 71). They provide balance practice to only a limited degree. More than this will be necessary to get standing balance. Deformities also occur because of bad posture or fit of standing tables. Their use is prescriptive and a teacher should consult the child's physician or therapist.

Fig. 72

This is a prone-stander (Fig. 72). These may be used to provide some graduated experience of upright posture and weightbearing, and encourage extension of head and trunk. Some can be alternated between prone and tilted up positions.

Fig. 73

Encourage sideways cruising around furniture or walls. This is an important stage in getting balance and weight shift. When you see the child standing alone briefly or transfering from one piece of furniture to another he will enjoy propulsively walking a few steps from the wall to you (Fig. 73). A shaping procedure in which two supports are gradually moved farther apart may be helpful at this point. You can also assist him from the front to hold a stick with both or one hand. The beginning walker may also push a chair, where he does not have to place and replace his hands (Fig. 74). This is rarely a harmful activity even when you are not sure what

Fig. 74

Fig. 75

type of walking aids, if any, the child will need.

Some children with cerebral palsy walk without aids; others require crutches. A walker should only be used prescriptively for a young child with cerebral palsy. Therapists may hesitate to put a very young child in one as many bad habits are picked up that may intensify abnormal patterns and delay walking. For a child who is getting older and is unable to manage independent walking, a walker may be a means of assisted walking that could be valuable in his fight to maintain mobility and to his self-concept. The therapist will want to try the child out, look at alignment and his way of moving (Fig. 75).

What to Ask the Therapist and What to Thell The Therapist

It is hoped we have given you some ideas about potential deformity producing situations which you need to bring to the attention of a therapist or physician. The therapist should give the teacher practical ways to support therapy goals with realistic consideration of assistance available in the classroom. . . some strategies that involve direct handling, some positioning and arrangements that enable the child to do something constructive while the teacher gives direct attention to another child.

The therapist should tell the teacher which present or potential deformities are of concern, and the purpose of an activity. . . whether it is to counteract deformity, whether it is to enable the child to function, or whether it is to acquire new ability. It is important for the teacher to indicate the need for positioning facilitating attention, or use of the hands, to help a therapist shift perspective. The teacher is concerned with

many areas of learning, and it is easy for therapists to program a child's activities too much around things he cannot do without help, and forget to look at ways the child can compensate for motor problems in cognitive and language activities.

It is useful for a consulting therapist to visit the school and get a feeling for the classroom routine, the children, and the realities of staff and equipment, so that suggestions can be made in that context. If this is not possible, a teacher should present a classroom routine to the therapist, pointing out activities that take place, times the child needs to see or attend, times he needs to use his hands, times assistance is available, and times for free play. The best source of a therapist for consultation is a pediatric center, where therapists will be familiar with techniques appropriate for children.

PART II. DEAF-BLIND CURRICULUM AND THE CHILD WITH CEREBRAL PALSY

The Blind Child's Orientation

When a child has a physical handicap and is blind, moving into the environment can be even more delayed than it is with the blind child or the child with cerebral palsy alone. "Ear-hand coordination" is an important prerequisite, beginning with reach for object within reach, then out of reach . Object permanance concepts -- that is, the child's understanding that an object still exists even when he cannot hear it or feel it, his search for it, and imagery in whatever sensory channels are working for the child -- appear to be related to readiness for orientation-mobility in space. In the normal child stranger discrimination is also associated with this stage of concept development. These behaviors are delayed in the "normal" blind child and may be particularly slow when the child also has a physical handicap.

The teacher and parent may train the child in "ear-hand coordination" and systematic search strategies by first giving the child a noisy toy that he likes, so that he is motivated to find the object. A great deal of trust and recognition of the object's sound are needed if he is to reach for an unknown. The toy can then be sounded within reach, first on a table surface or floor beside the child, later in the air. Touching the object to a new body part and withdrawing it but maintaining the sound, or guiding the child's arm can help the child in localizing the object. If the child cannot use hearing, he may use a tactile sweep of his hands, which the teacher should encourage to become more systematic and delicate. The object can then be placed farther and farther (so that the child must stretch for it) and finally just out of reach so that the child must move

to it by changing posture or whatever locomotor pattern he has. Greater distance can then be required.

Search strategies for an object when it is not touching or sounding may begin with the child dropping the object and searching for it where he last had it. Sound or touch cues can be given, then faded, so that the child must remember where he last heard it or felt it. As the child acquires this ability with objects outside his space, he begins more and more to move to and find certain favorite things in his familiar space world. . . the T.V., a rug he likes to lie on, a cupboard. Perhaps memory or permanence of objects is also associated with the child progressing from using the same actions on all objects, to exploring and recognizing them, and using actions more related to the object's properties. Another useful strategy is consistent placement of objects so that a child can expect to search in a certain place and find the object; for example, rings of the rack-a-stack all at his right, or in a certain corner of a tray. Some of the problems in training self-feeding you might expect to improve as search and object permanence concepts are developed.

Often moving to a parent, a favorite teacher, or the record player will be a stronger incentive than an object, as the child's interest in objects may still be limited. This strategy, of course, requires recognition of familiar persons and a good personal relationship. We have sometimes started with a prompted roll form back to side, with the adult, then hugging, patting, or kissing for reinforcement. When the child will turn without help, distance can be increased, requiring the child to roll all the way over to prone and so on. If the child has some ability in prone to keep his head up, and has demonstrated play with objects, weight shift and

reach in that position, a pivot, or turn may be a step. Each stage the child goes through such as scooting, getting up to sit, or pulling up to stand should be combined with use of strongly motivating toys so that the child comes to think of using that movement strategy to get something. The child should have to move to the object or person; social or edible reinforcers given for moving out of this context may help in shaping the movement skill, but have no effect on orientation. Avoid the mistake of repeating the demand too many times in a row or the natural reinforcer of frustration will outweight any positive reinforcer you use. The child should have the object to play with and not have it immediately taken away again.

When a child appears to be nearing readiness for walking, it is important that the blind child acquire safe peripheral cruising and following of sound cues, and recognition of landmarks before being expected to cross space. I have seen blind children expected to take off for independent walking or crutchwalking with no idea where they were. It would be helpful to give the child a guide such as a rope across space to hold, or continued talking or sound as you move in front of him, when he is ready to move from a landmark across space to a specific place or thing he remembers. As with any blind child, "squaring off" or turning 90° is part of training in taking off from landmarks. When the child is beginning to cross space he should be taught to use his arms out in front to feel for obstacles or to cautiously feel with crutches or feet. Some preparatory work with a crutch-walker feeling for and hitting a big ball with a crutch may help. Working in the child's familiar living or schoolroom space is important, rather than in the physical therapy department. One blind infant we worked

with used his crawligator to move into space at home in an exploratory way. Instead of lying on it he crawled,pushing it in front of him as a bumper. A scooterboard or chair might be used similarly. With every blind child with cerebral palsy, teachers and therapists should carefully consider orientation level with each new motor level or goal.

Sometimes issues around orientation and therapy goals are difficult to resolve. For example, Barbara,a hemiplegic blind child, has progressed to moving to sounded objects or persons short distances on the floor by seat scooting. She showed some memory for objects in search, and could walk slowly with either hand held. She had some beginning ability to prop and protect with her involved arm, and although she used the hand assistively with objects when directed, she did not use it very much on her own. She appeared to lack good sensory perception in the hand and arm. Therapist and teacher agreed on the appropriateness of teaching her tracking of room peripheries and walls of corridors. They disagreed, however, as to which hand to hold and which should do the tracking. The therapist felt the involved hand should be used for tracking, so that protective extension against walls could be encouraged. The teacher felt that the uninvolved hand should be used for tracking because tactile discrimination was needed if the child was to acquire any orientation skills. The problem was settled by a compromise: beginning orientation work would utilize the better discriminative hand for tracking. Therapy work would be done at a certain landmark with some work on protective extension against the wall with appropriate facilitation. It wasn't going to do the child much good to have a protective response in standing if she wasn't moving into space. Use of the involved hand with objects and sensory discrimination work would continue.